

U.S. Patent Application Serial No. **10/531,952**
Amendment filed June 4, 2010
Reply to OA dated February 5, 2010

REMARKS

Claims 1-14 are pending in this application, with claims 1 and 9-14 withdrawn from consideration. Claim 15 is newly added herein. Upon entry of this amendment, claims 1-15 will be pending, with claims 1 and 9-14 withdrawn from consideration. Entry of this amendment and reconsideration of the rejections are respectfully requested.

No new matter has been introduced by this Amendment. Support for the amendments to the claims and specification is discussed below.

Claims 2 and 7-8 are rejected under 35 U.S.C. §103(a) as being unpatentable over McCarthy et al. (US 5,883,199) in view of Liu et al. (J. of Environmental Polymer Design, 1997) and Hiruma et al. (JP 2002-128918) with evidence provided by Hodson (US 2006/0240726).
(Office action paragraph no. 2)

Claims 4-5 are rejected under 35 U.S.C. §103(a) as being unpatentable over McCarthy et al. (US 5,883,199) in view of Liu et al. (J. of Environmental Polymer Design, 1997) and Hiruma et al. (JP 2002-128918) with evidence provided by Hodson (US 2006/0240726), further in view of Downie et al. (US 2001/0027225). (Office action paragraph no. 3)

Claim 6 is rejected under 35 U.S.C. §103(a) as being unpatentable over McCarthy et al. (US 5,883,199) in view of Liu et al. (J. of Environmental Polymer Design, 1997) and Hiruma et al. (JP 2002-128918) with evidence provided by Hodson (US 2006/0240726), further in view of Akao et al. (US 5,814,497). (Office action paragraph no. 4)

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Claims 3 and 8 are rejected under 35 U.S.C. §103(a) as being unpatentable over McCarthy et al. (US 5,883,199) in view of Liu et al. (J. of Environmental Polymer Design, 1997) and Hiruma et al. (JP 2002-128918) with evidence provided by Hodson (US 2006/0240726), further in view of Obuchi et al. (US 6,916,950) with evidence from Wypych (2000). (Office action paragraph no. 5)

The rejections of claims 2-8 are respectfully traversed, and reconsideration is requested.

In the rejections, the Examiner cites McCarthy for teaching biodegradable blends including a first polylactic acid-based polymer and a second polymer that is one or more polyesters, where the first and second polymers are present in a ratio of 1:9 to 9:1, and that the polylactic acid can be present at more than 50%. The Examiner states that the second polymer can be a copolymer having up to 50% of an aromatic polyester (column 2, lines 42-43), and therefore can be an aromatic-aliphatic polyester. The Examiner also cites the additional component of a compatibilizer as being an additional polyester.

The Examiner states that McCarthy does not explicitly disclose the Tg or ΔH_m of the other polyesters, but discloses diacids of the Bionolle family of polymers. Hodson is cited as evidence for the Tg values of these polymers, and that several have Tg values below 0°C.

Liu is cited as teaching that Bionolle can be blended with PLA to improve the thermal and mechanical properties of the PLA. The Examiner states that Liu suggests that Bionolle should be used above 20% by weight.

Hiruma is cited for disclosing a polylactic acid-type polymer composition having an aromatic-aliphatic polyester resin component, with the particular example of Ecoflex, which is cited as being considered in the present application to meet the limitations of the aromatic-aliphatic polymer (B).

However, in traversing the rejection, Applicant submits that McCarthy **does not disclose or suggest component (B) of claim 2**, which is: "an aromatic aliphatic polyester having a glass transition temperature (T_g) of 0°C or less and a heat of crystal melting (ΔH_m) of 5 J/g to 30 J/g, and/or an aliphatic polyester other than the lactic acid based resin, having a glass transition temperature (T_g) of 0°C or less and a heat of crystal melting (ΔH_m) of 5 J/g to 30 J/g."

In McCarthy, the second polymer can be of the Bionolle series, but there is no disclosure of an aromatic aliphatic polyester having a heat of crystal melting (ΔH_m) of 5 J/g to 30 J/g nor an aliphatic polyester having a heat of crystal melting (ΔH_m) of 5 J/g to 30 J/g. Applicant notes that the present specification states at page 18, lines 14-16: "However, the aliphatic polyesters such as Bionole series have a heat of crystal melting (ΔH_m) of more than 30 J/g." That is, the Bionolle series does **not** meet the limitations of component (B) of claim 2.

The Examiner points out that the Bionolle #3000 series can be used as a compatibilizer in McCarthy. However, the Bionolle #3000 series does not have ΔH_m of 5 J/g to 30 J/g. The heat of crystal melting (ΔH_m) of Bionolle #3000 series is as follows: ΔH_m of Bionolle #3001 is 44.9 J/g, ΔH_m of Bionolle #3003 is 43.0 J/g, ΔH_m of Bionolle #3010 is 34.8 J/g, and ΔH_m of Bionolle #3030 is 54.0 J/g.

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The Examiner cites Hiruma as disclosing component (B) of claim 2. However, Hiruma discloses only a **two-component system** (PLA and one aromatic aliphatic polyester). There is no suggestion in Hiruma for adding a third component, and in particular, no suggestion for component (C) of claim 2. Note that the invention of Hiruma is specifically a heat-shrinkable film, and adding an additional component would be expected to interfere with the heat-shrink properties. There is no suggestion or motivation in McCarthy or Hiruma for any combination of these references.

Claims 2-8 are therefore not obvious over the cited references, taken separately or in combination.

Regarding new claim 15.

New claim 15 depends from claim 2 and further limits the content of component (C) to a lower limit of 20 mass%. Support for new claim 15 may be found in Example I-5 on page 42 of the specification. Applicant's above arguments regarding the non-obviousness of base claim 2 are applicable to new claim 15. In addition, Applicant notes that the compatibilizer in McCarthy, cited by the Examiner as corresponding to component (C), is present at only up to 10% (column 6, lines 19-21).

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the applicants, undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

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In the event that this paper is not timely filed, the applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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Enclosure: Petition for Extension of Time

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